§ 98.401 Reporting threshold.

Any supplier of natural gas and natural gas liquids that meets the requirements of § 98.2(a)(4) must report GHG emissions.

§ 98.402 GHGs to report.

(a) NGL fractionators must report the CO_2 emissions that would result from the complete combustion or oxidation of the annual quantity of ethane, propane, normal butane, isobutane, and pentanes plus that is produced and sold or delivered to others.

(b) LDCs must report the CO_2 emissions that would result from the complete combustion or oxidation of the annual volumes of natural gas provided to end-users on their distribution systems.

§ 98.403 Calculating GHG emissions.

(a) LDCs and fractionators shall, for each individual product reported under this part, calculate the estimated CO_2 emissions that would result from the complete combustion or oxidation of the products supplied using either of Calculation Methodology 1 or 2 of this subpart:

(1) *Calculation Methodology 1.* NGL fractionators shall estimate CO_2 emissions that would result from the complete combustion or oxidation of the product(s) supplied using Equation NN–1 of this section. LDCs shall estimate CO_2 emissions that would result from the complete combustion or oxidation of the product received at the city gate using Equation NN–1. For each product, use the default value for higher heating value and CO_2 emission factor in Table NN–1 of this subpart. Alternatively, for each product, a reporter-specific higher heating value and CO_2 emission factor may be used, in place of one or both defaults provided they are developed using methods outlined in § 98.404. For each product, you must use the same volume unit throughout the equation.

$$CO_{2i} = 1 \times 10^{-3} \star \sum Fuel_h \star HHV_h \star EF_h \qquad \text{(Eq. NN-1)}$$

Where:

CO_{2i} = Annual CO_2 mass emissions that would result from the combustion or oxidation of each product ''h'' for redelivery to all recipients (metric tons).

$Fuel_h$ = Total annual volume of product ''h'' supplied (volume per year, in thousand standard cubic feet (Mscf) for natural gas and bbl for NGLs).

HHV_h = Higher heating value of product ''h'' supplied (MMBtu/Mscf or MMBtu/bbl).

EF_h = CO_2 emission factor of product ''h'' (kg CO_2/MMBtu).

1×10^{-3} = Conversion factor from kilograms to metric tons (MT/kg).

(2) *Calculation Methodology 2.* NGL fractionators shall estimate CO_2 emissions that would result from the complete combustion or oxidation of the product(s) supplied using Equation NN–2 of this section. LDCs shall estimate CO_2 emissions that would result from the complete combustion or oxidation of the product received at the city gate using Equation NN–2. For each product, use the default CO_2 emission factor found in Table NN–2 of this subpart. Alternatively, for each product, a reporter-specific CO_2 emission factor may be used in place of the default factor, provided it is developed using methods outlined in § 98.404. For each product, you must use the same volume unit throughout the equation.

$$CO_{2i} = \sum_h Fuel_h * EF_h \qquad \text{(Eq. NN-2)}$$

Where:

CO_{2i} = Annual CO_2 mass emissions that would result from the combustion or oxidation of each product ''h'' (metric tons)

$Fuel_h$ = Total annual volume of product ''h'' supplied (volume per year, in Mscf for natural gas and bbl for NGLs).

EF_h = CO_2 emission factor of product ''h'' (MT CO_2/bbl, or MT CO_2/Mscf)

(b) Each LDC shall follow the procedures below.

(1) For natural gas that is received for redelivery to downstream gas transmission pipelines and other local distribution companies, use Equation NN–

3 of this section and the default values for the CO_2 emission factors found in Table NN–2 of this subpart. Alternatively, reporter-specific CO_2 emission factors may be used, provided they are developed using methods outlined in § 98.404.

$$CO_{2j} = Fuel \star EF \qquad \text{(Eq. NN-3)}$$

Where:

CO_{2j} = Annual CO_2 mass emissions that would result from the combustion or oxidation of natural gas for redelivery to transmission pipelines or other LDCs (metric tons).

Fuel = Total annual volume of natural gas supplied (Mscf per year).

EF = Fuel-specific CO_2 emission factor (MT CO_2/Mscf).

(2)(i) For natural gas delivered to large end-users, use Equation NN–4 of this section and the default values for the CO_2 emission factors found in Table NN–2 of this subpart. A large end-user means any end-user facility receiving greater than or equal to 460,000 Mscf of natural gas per year. If the LDC does not know the total quantity of gas delivered to the end-user facility based on readily available information in the LDCs possession, then large end-user means any single meter at an end-user facility to which the LDC delivers equal to or greater than 460,000 Mscf per year.

(ii) Alternatively, reporter-specific CO_2 emission factors may be used, provided they are developed using methods outlined in § 98.404.

$$CO_{2k} = Fuel \star EF \qquad \text{(Eq. NN-4)}$$

Where:

CO_{2k} = Annual CO_2 mass emissions that would result from the combustion or oxidation of natural gas delivered to each large end-user k, as defined in paragraph (b)(2)(i) of this section (metric tons).

Fuel = Total annual volume of natural gas supplied to each large end-user k, as defined in paragraph (b)(2)(i) of this section (Mscf per year).

EF = Fuel-specific CO_2 emission factor (MT CO_2/Mscf).

(3) For the net change in natural gas stored on system by the LDC during the reporting year, use Equation NN–5a of this section. For natural gas that is received by means other than through the city gate, and is not otherwise accounted for by Equation NN–1 or NN–2 of this section, use Equation NN–5b of this section.

(i) For natural gas received by the LDC that is injected into on-system storage, and/or liquefied and stored, and for gas removed from storage and used for deliveries, use Equation NN–5a of this section and the default value for the CO_2 emission factors found in Table NN–2 of this subpart. Alternatively, a reporter-specific CO_2 emission factor may be used, provided it is developed using methods outlined in § 98.404.

$$CO_{2l} = \left[Fuel_1 - Fuel_2\right] * EF \qquad \text{(Eq. NN-5a)}$$

Where:

CO_{2l} = Annual CO_2 mass emissions that would result from the combustion or oxidation of the net change in natural gas stored on system by the LDC within the reporting year (metric tons).

$Fuel_1$ = Total annual volume of natural gas added to storage on-system or liquefied and stored in the reporting year (Mscf per year).

$Fuel_2$ = Total annual volume of natural gas that is removed from storage or vaporized and removed from storage and used for deliveries to customers or other LDCs by the LDC within the reporting year (Mscf per year).

EF = Annual average CO_2 emission factor for natural gas placed into/removed from storage (MT CO_2/Mscf).

(ii) For natural gas received by the LDC that bypassed the city gate, use Equation NN–5b of this section. This includes natural gas received directly by LDC systems from producers or natural gas processing plants from local production, received as a liquid and vaporized for delivery, or received from any other source that bypassed the city gate. Use the default value for the CO_2 emission factors found in Table NN–2 of this subpart. Alternatively, a

reporter-specific CO_2 emission factor may be used, provided it is developed using methods outlined in § 98.404.

$$CO_{2n} = Fuel_z * EF_z \quad \text{(Eq. NN-5b)}$$

Where:

CO_{2n} = Annual CO_2 mass emissions that would result from the combustion or oxidation of natural gas received that bypassed the city gate and is not otherwise accounted for by Equation NN–1 or NN–2 of this section (metric tons).

$Fuel_z$ = Total annual volume of natural gas received that was not otherwise accounted for by Equation NN–1 or NN–2 of this section (natural gas from producers and natural gas processing plants from local production, or natural gas that was received as a liquid, vaporized and delivered, and any other source that bypassed the city gate). (Mscf per year)

EF_z = Fuel-specific CO_2 emission factor (MT CO_2/Mscf)

(4) Calculate the total CO_2 emissions that would result from the complete combustion or oxidation of the annual supply of natural gas to end-users that receive a supply less than 460,000 Mscf per year using Equation NN–6 of this section.

$$CO_2 = CO_{2i} + CO_{2n} - CO_{2j} - \sum CO_{2k} - CO_{2l} \quad \text{(Eq. NN-6)}$$

Where:

CO_2 = Annual CO_2 mass emissions that would result from the combustion or oxidation of natural gas delivered to LDC end-users not covered in paragraph (b)(2) of this section (metric tons).

CO_{2i} = Annual CO_2 mass emissions that would result from the combustion or oxidation of natural gas received at the city gate as calculated in paragraph (a)(1) or (2) of this section (metric tons).

CO_{2j} = Annual CO_2 mass emissions that would result from the combustion or oxidation of natural gas delivered to transmission pipelines or other LDCs as calculated in paragraph (b)(1) of this section (metric tons).

CO_{2k} = Annual CO_2 mass emissions that would result from the combustion or oxidation of natural gas delivered to each large end-user as calculated in paragraph (b)(2) of this section (metric tons).

CO_{2l} = Annual CO_2 mass emissions that would result from the combustion or oxidation of the net change in natural gas stored by the LDC within the reported year as calculated in paragraph (b)(3)(i) of this section (metric tons).

CO_{2n} = Annual CO_2 mass emissions that would result from the combustion or oxidation of natural gas that was received by the LDC directly from sources bypassing the city gate, and is not otherwise accounted for in Equation NN–1 or NN–2 of this section, as calculated in paragraph (b)(3)(ii) of this section (metric tons).

(c) Each NGL fractionator shall follow the following procedures.

(1)(i) For fractionated NGLs received by the reporter from other NGL fractionators, you shall use Equation NN–7 of this section and the default values for the CO_2 emission factors found in Table NN–2 of this subpart.

(ii) Alternatively, reporter-specific CO_2 emission factors may be used, provided they are developed using methods outlined in § 98.404.

$$CO_{2m} = \sum_g Fuel_g \star EF_g \quad \text{(Eq. NN-7)}$$

Where:

CO_{2m} = Annual CO_2 mass emissions that would result from the combustion or oxidation of each fractionated NGL product ''g'' received from other fractionators (metric tons).

$Fuel_g$ = Total annual volume of each NGL product ''g'' received (bbls).

EF_g = Fuel-specific CO_2 emission factor of NGL product ''g'' (MT CO_2/bbl).

(2) Calculate the total CO_2 equivalent emissions that would result from the combustion or oxidation of fractionated NGLs supplied less the

quantity received from other fractionators using Equation NN–8 of this section.

$$CO_2 = CO_{2i} - CO_{2m} \qquad \text{(Eq. NN-8)}$$

Where:

CO_2 = Annual CO_2 mass emissions that would result from the combustion or oxidation of fractionated NGLs delivered to customers or on behalf of customers less the quantity received from other fractionators (metric tons).

CO_{2i} = Annual CO_2 mass emissions that would result from the combustion or oxidation of fractionated NGLs delivered to all customers or on behalf of customers as calculated in paragraph (a)(1) or (a)(2) of this section (metric tons).

CO_{2m} = Annual CO_2 mass emissions that would result from the combustion or oxidation of fractionated NGLs received from other fractionators and calculated in paragraph (c)(1) of this section (metric tons).

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§ 98.404 Monitoring and QA/QC requirements.

(a) *Determination of quantity.* (1) NGL fractionators and LDCs shall determine the quantity of NGLs and natural gas using methods in common use in the industry for billing purposes as audited under existing Sarbanes Oxley regulationn.

(i) Where an appropriate standard method published by a consensus-based standards organization exists, such a method shall be used. Consensus-based standards organizations include, but are not limited to, the following: ASTM International, the American National Standards Institute (ANSI), the American Gas Association (AGA), the American Society of Mechanical Engineers (ASME), the American Petroleum Institute (API), and the North American Energy Standards Board (NAESB).

(ii) Where no appropriate standard method developed by a consensus-based standards organization exists, industry standard practices shall be followed.

(2) NGL fractionators and LDCs shall base the minimum frequency of the product quantity measurements, to be summed to the annual quantity reported, on the reporter's standard practices for commercial operations.

(i) For NGL fractionators the minimum frequency of measurements shall be the measurements taken at custody transfers summed to the annual reportable volume.

(ii) For natural gas the minimum frequency of measurement shall be based on the LDC's standard measurement schedules used for billing purposes and summed to the annual reportable volume.

(3) NGL fractionators shall use measurement for NGLs at custody tranfer meters or at such meters that are used to determine the NGL product slate delivered from the fractionation facility.

(4) If a NGL fractionator supplies a product not listed in Table NN–1 of this subpart that is a mixture or blend of two or more products listed in Tables NN–1 and NN–2 of this subpart, the NGL fractionator shall report the quantities of the constituents of the mixtures or blends separately.

(5) For an LDC using Equation NN–1 or NN–2 of this subpart, the point(s) of measurement for the natural gas volume received shall be the LDC city gate meter(s).

(i) If the LDC makes its own quantity measurements according to established business practices, its own measurements shall be used.

(ii) If the LDC does not make its own quantity measurements according to established business practices, it shall use its delivering pipeline invoiced measurements for natural gas deliveries to the LDC city gate, used in determining daily system sendout.

(6) An LDC using Equation NN–3 of this subpart shall measure natural gas at the custody transfer meters.

(7) An LDC using Equation NN–4 of this subpart shall measure natural gas at the large end-user's meter(s). Where a large end-user is known to have more than one meter located at their facility, based on readily available information in the LDCs possession, the reporter shall measure the natural gas at each meter and sum the annual volume delivered to all meters located at the end-user's facility to determine the total volume delivered to the large end-user. Otherwise, the reporter shall